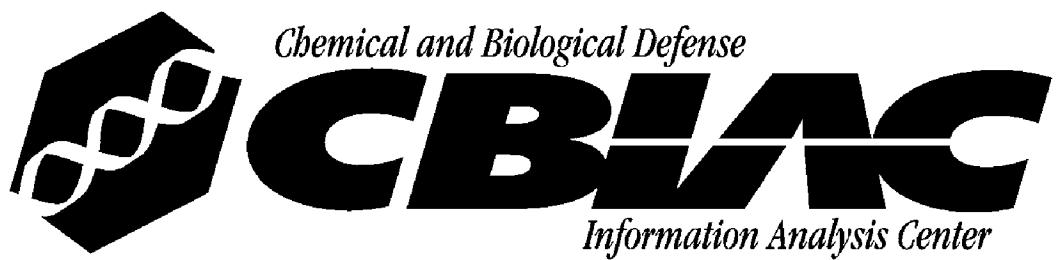


**CB-122970**



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JOD, DPG

C-E-I-R, INC.  
Dugway Field Operation  
Dugway Proving Ground  
Dugway, Utah

SUBJECT: Review and Analysis Report

DATE: 7 December 1961

TO: Director, Technical Operations  
Dugway Proving Ground  
Dugway, Utah

1. Inclosed is the Review and Analysis of work done by C-E-I-R, INC., under Contract No. DA-42-007-403-CML-431 at Dugway Field Operation and at Los Angeles C-E-I-R Center during the period 3 November to 7 December 1961.

2. Contents of this report are arranged in two main sections:

- (a) Formal programs (pp 1 - 12)
- (b) Informal programs (pp 13 - 18)

In Section (a) problems appear in order of priority assignment (except as noted). In Section (b) problems are grouped by requesting organization and ordered within groups by date of request, with newest problems appearing first.

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P. G. HOMEYER  
Project Director  
C-E-I-R, INC.

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DPG 61-2804

## (1) TITLE:

Summary and Evaluation of Chemical Spray Trials

## (2) REQUESTED BY:

TD&A

## (3) FIRST REPORTED:

March 1961

## (4) PROBLEM:

To summarize the status of spray testing, indicate additional desired or requested testing, prepare an adequate bibliography covering reporting of previous testing and to prepare a general plan for the approach to and solution of problems in future or projected spray testing.

## (5) OBJECTIVES:

As stated in the problem.

## (6) WORK ACCOMPLISHED SINCE LAST REPORT:

- (a) Work continued on Volume 1
- (b) Comments on draft of Volume 2 received and revisions incorporated.

## (7) WORK PLANNED FOR NEXT PERIOD:

Completion of report.

## (8) COMMENTS:

This problem has been assigned C-E-I-R Priority No. 1 by Project Officer (Director, Tech Opns). Formal request dated 20 April 1961 received from Chief, TD&A.

## (9) ESTIMATED COMPLETION DATE:

January

(1) TITLE:  
Dosage Build Up of E130 Type Bomblets

(2) REQUESTED BY:  
TD&A

(3) FIRST REPORTED:  
October 1959

(4) PROBLEM:  
To accomplish build-ups involving single bomblet data, warhead data and data from multiple bomblet trials containing fewer bomblets than contained in one warhead.

(5) OBJECTIVES:  
(a) To prepare a test design for field trials involving multiple bomblet patterns containing fewer bomblets than contained in a single warhead.  
(b) To produce a mathematical model for calculations of warhead effects from single bomblet data and data from multiple bomblet static trials.  
(c) To carry out the required build-ups from available data with the use of the mathematical model.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
Computer program for build-up prepared and checked out. Build-up using C578 A-2 dissemination pattern and C593 A-1 bomblet pattern has been accomplished. The method appears to be satisfactory.

(7) WORK PLANNED FOR NEXT PERIOD:  
A report on calculation of warhead effects will be prepared. Computer program for build-up calculations will be turned over to Computer Center. Required build-ups will be computed.

(8) COMMENTS:  
This problem has been assigned C-E-I-R Priority No. 2 by Project Officer (Director, Tech Opsns). Formal request dated 8 Mar 61 received from Chief, TD&A.

(9) ESTIMATED COMPLETION DATE:  
Indefinite

(1) TITLE:  
Target Area Coverage Evaluation of Guided Missile Warhead E23

(2) REQUESTED BY:  
TD&A Engineering Test Branch

(3) FIRST REPORTED:  
September 1960

(4) PROBLEM:  
Predict the biological agent dose concentration in a target area produced by the release of bombs from an E23 guided missile warhead.

(5) OBJECTIVE:  
Derive the necessary functions for evaluation of data obtained from single or multiple point source explosive dissemination of biological agent with respect to determination of the cumulative agent dosage available at any given point within a target area.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
Computer program for build-up prepared and checked out. Build-ups using B514 A-1 dissemination pattern and possible static multiple test designs have been accomplished.

(7) WORK PLANNED FOR NEXT PERIOD:  
Alternative designs for static multiple tests will be evaluated from build-up calculations.

(8) COMMENTS:  
This problem has been assigned C-E-I-R Priority No. 3 by Project Officer (Director, Tech Opns). Formal request dated 24 April 1961 has been received.

(9) ESTIMATED COMPLETION DATE:  
Indefinite.

(1) TITLE:  
Protective Additives for Biological Agent

(2) REQUESTED BY:  
Biological Division

(3) FIRST REPORTED:  
June 1960

(4) PROBLEM:  
To provide assistance in statistical design and analysis for experimentation on protective additives for biological agent.

(5) OBJECTIVE:  
As stated in the problem.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
Calculated decay rate and source strength estimates from experimental data. Consulted in design of additional chamber trials.

(7) WORK PLANNED FOR NEXT PERIOD:  
Statistical analysis of all data submitted has been completed insofar as planned. Additional work will depend on further requests.

(8) COMMENTS:  
This problem has been assigned C-E-I-R Priority No. 4 by Project Officer (Director, Tech Opns). DF, CMLRD-DU-EGO, subject: Request for Assistance (U), dated 5 June 1961, SECRET, has been received. This request applies also to assistance on additional experiments in this area as required.

(9) ESTIMATED COMPLETION DATE:  
Indefinite.

(1) TITLE:  
Target Climatology

(2) REQUESTED BY:  
Meteorology Division

(3) FIRST REPORTED:  
July 1960

(4) PROBLEM:  
To assist in statistical and data processing aspects of the development of a system for prediction of probability of occurrence of various combinations of meteorological conditions.

(5) WORK ACCOMPLISHED SINCE LAST REPORT:  
Several conferences were held with personnel of Meteorology Division and Computer Center on the development of a general trial probability program. Some recommendations have been made informally on card format and computing problems.

(6) WORK PLANNED FOR NEXT PERIOD:  
General program is to be written by Computer Center. C-E-I-R will assist as requested.

(7) COMMENTS:  
This problem has been assigned C-E-I-R Priority No. 5 by Project Officer (Director, Tech Ops). No formal request will be required.

(8) ESTIMATED COMPLETION DATE:  
Indefinite

(1) TITLE:  
Automatic Data Processing of Environmental Test Results

(2) REQUESTED BY:  
Environmental Test Division

(3) FIRST REPORTED:  
January 1961

(4) PROBLEM:  
To establish methods of preparing environmental field test data for automatic data processing.

(5) OBJECTIVES:  
(a) To analyze eight draft test plan changes for the best method of implementing ADP.  
(b) To plan the card format so that it is adequate for current and possible future requirements.  
(c) To resolve the types of analysis to be employed, the programming of the analysis for the IBM 1620 and the presentation of the data in final form.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
None.

(7) WORK PLANNED FOR NEXT PERIOD:  
(a) Note on quality checks for data from Test Plan 715 will be prepared.  
(b) Appropriate statistical analysis methods for data from TP 565 and TP 715 will be determined.

(8) COMMENTS:  
This problem has been assigned C-E-I-R Priority No. 6 by Project Officer (Director, Tech Opns). Formal Request dated 13 April 1961 has been received from Chief, Environmental Test Division.

(9) ESTIMATED COMPLETION DATE:  
Indefinite.

(1) TITLE:  
Aerosol and Vapor Sampling Problems

(2) REQUESTED BY:  
Chemical Division

(3) FIRST REPORTED:  
December 1961

(4) PROBLEM:  
To assist in statistical and mathematical aspects of aerosol and/or vapor sampling problems.

(5) OBJECTIVES:  
(a) To analyze data obtained in C568 series for determination of number of samplers required for agent recovery trials under DPGTP 610.  
(b) To assist in statistical problems arising in development and use of particulate sampling devices.  
(c) To investigate statistical problems associated with agent recovery by liquid sampling devices.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
(a) C568 trial data on M7A1 and M7A2 grenades prepared for computation of components of variance.  
(b) Some previous C-E-I-R work on particulate sampling statistics submitted to Chemical Division for review.  
(c) No effort on this objective.

(7) WORK PLANNED FOR NEXT PERIOD:  
(a) Technical Note will be prepared upon receipt of computer runs.  
(b) Additional work to be specified by requestor.  
(c) Requestor to specify work to be done.

(8) COMMENTS:  
This problem has been assigned C-E-I-R priority No. 7 by Project Officer (Director, Tech Opns). DF request dated 14 November 1961 covers work under objective (a)

(9) ESTIMATED COMPLETION DATE:  
Indefinite

(1) TITLE:  
Simulant-Agent Compatibility

(2) REQUESTED BY:  
Biological Division

(3) FIRST REPORTED:  
December 1961

(4) PROBLEM:  
Assist in design and analysis of experiments to investigate compatibility of agent and simulant organisms.

(5) OBJECTIVES:  
To be specified.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
None.

(7) WORK PLANNED FOR NEXT PERIOD:  
Awaiting formal request and/or specific requirements.

(8) COMMENTS:  
This problem has been assigned C-E-I-R priority No. 8 by Project Officer (Director, Tech Opns).

(9) ESTIMATED COMPLETION DATE:  
Indefinite.

(1) TITLE:  
    Impinger Tip Modification

(2) REQUESTED BY:  
    Biological Lab Branch

(3) FIRST REPORTED:  
    November 1961

(4) PROBLEM:  
    To assist in statistical design and analysis of experiments to determine the effect of impinger tip modifications.

(5) OBJECTIVES:  
    To be specified.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
    Completed Analysis of data received.

(7) WORK PLANNED FOR NEXT PERIOD:  
    None.

(8) COMMENTS:  
    This problem has been assigned C-E-I-R priority No. 9 by Project Officer (Director, Tech Opns).

(9) ESTIMATED COMPLETION DATE:  
    Indefinite.

(1) TITLE:  
Cell Counts from Solid Surfaces

(2) REQUESTED BY:  
Biological Division

(3) FIRST REPORTED:  
December 1961

(4) PROBLEM:  
To assist in design and analysis of experiments on cell counting from impaction sampling devices.

(5) OBJECTIVES:  
To be specified.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
None.

(7) WORK PLANNED FOR NEXT PERIOD:  
None.

(8) COMMENTS:  
This problem has been assigned C-E-I-R priority No. 10 by Project Officer (Director, Tech Opns).

(9) ESTIMATED COMPLETION DATE:  
Indefinite.

(1) TITLE:  
Objective Forecasting Techniques

(2) REQUESTED BY:  
Meteorology Division

(3) FIRST REPORTED:  
November 1961

(4) PROBLEM:  
To assist in statistical aspects of the development of an objective forecasting method for DPG.

(5) OBJECTIVES:  
To be specified.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
Several meetings were held with Meteorology personnel to discuss objective forecasting techniques and problems.

(7) WORK PLANNED FOR NEXT PERIOD:  
Additional consulting and such tasks as may be requested.

(8) COMMENTS:  
This problem has been assigned C E I R priority No. 11 by Project Officer (Director, Tech Opns).

(9) ESTIMATED COMPLETION DATE:  
Indefinite.

(1) TITLE:  
Greenland Environmental Baseline Monitoring Report

(2) REQUESTED BY:  
Environmental Test Division

(3) FIRST REPORTED:  
June 1961

(4) PROBLEM:  
To provide a summary of the Chemical Corps Radiological Monitoring Program in Greenland with particular reference to the establishment and operation of EN-RAD-MON Program at Camp Century.

(5) OBJECTIVES:  
(a) To analyze statistically the data obtained from the Chemical Corps EN-RAD-MON Program during the period 20 May through 30 September 1960.  
(b) To determine the radiological baseline in Greenland prior to the activation of the nuclear reactor at Camp Century.  
(c) To prepare a DPG report summarizing (a) and (b) above.

(6) WORK ACCOMPLISHED SINCE LAST REPORT:  
Computational work has been essentially completed.

(7) WORK PLANNED FOR NEXT PERIOD:  
Summary report will be written.

(8) COMMENTS:  
Formal request dated 2 June 1961 has been received from Chief, Environmental Test Division. This problem has been assigned C-E-I-R priority No. 12 by Project Officer (Director, Tech Opns).

(9) ESTIMATED COMPLETION DATE:  
January 1962.

(1) TITLE:  
Consulting in Routine Statistical Analysis

(2) REQUESTED BY:  
TD&A Biological Branch

(3) FIRST REPORTED:  
December 1961

(4) PROBLEM:  
To provide advice and assistance in analysis of test and experimental data by statistical methods.

(5) WORK ACCOMPLISHED SINCE LAST REPORT:  
Advised as to form and method of analysis of three sets of experimental data.

(6) WORK PLANNED FOR NEXT PERIOD:  
Additional services as required.

(7) COMMENTS:  
A Continuing problem.

(8) ESTIMATED COMPLETION DATE:  
Not applicable.

(1) TITLE:  
Bellwether IV

(2) REQUESTED BY:  
TD&A Biological Branch

(3) FIRST REPORTED:  
May 1961

(4) PROBLEM:  
To provide technical assistance in statistical design and analysis  
for Project Bellwether IV.

(5) WORK ACCOMPLISHED SINCE LAST REPORT:  
None

(6) WORK PLANNED FOR NEXT PERIOD:  
Assistance in statistical aspects of test analysis.

(7) COMMENTS:  
This problem arises in reference to DPG TP 580.

(8) ESTIMATED COMPLETION DATE:  
Indefinite

(1) TITLE:  
Persistence of Biological Agents in the Soil

(2) REQUESTED BY:  
Biological Lab Branch

(3) FIRST REPORTED:  
March 1961

(4) PROBLEM:  
To provide statistical advice on design of experiments for studying persistence of biological agents in the soil.

(5) WORK ACCOMPLISHED SINCE LAST REPORT:  
None

(6) WORK PLANNED FOR NEXT PERIOD:  
Data will be analyzed as it is made available.

(7) COMMENTS:  
None

(8) ESTIMATED COMPLETION DATE:  
Indefinite.

(1) TITLE:  
    Biological Field Test Quality Control

(2) REQUESTED BY:  
    Biological Division

(3) FIRST REPORTED:  
    August 1960

(4) PROBLEM:  
    To provide statistical assistance in the development and operation of field quality control program.

(5) WORK ACCOMPLISHED SINCE LAST REPORT:  
    None

(6) WORK PLANNED FOR NEXT PERIOD:  
    None

(7) COMMENTS:  
    A continuing program.

(8) ESTIMATED COMPLETION DATE:  
    Not applicable.

(1) TITLE:  
Chemical Field Test Quality Control

(2) REQUESTED BY:  
Chemical Division

(3) FIRST REPORTED:  
March 1960

(4) PROBLEM:  
To provide technical assistance in the development and operation of methods for inspection of field sampler set-outs for the purpose of maintaining and improving acceptable quality.

(5) WORK ACCOMPLISHED SINCE LAST REPORT:  
None

(6) WORK PLANNED FOR NEXT PERIOD:  
None

(7) COMMENTS:  
This problem is on a continuing basis, with additional work as requested.

(8) ESTIMATED COMPLETION DATE:  
Not applicable.

(1) TITLE:  
Atmospheric Diffusion Models

(2) REQUESTED BY:  
Meteorology Division

(3) FIRST REPORTED:  
November 1961

(4) PROBLEM:  
To advise and assist in mathematical and statistical aspects of application of atmospheric diffusion models to DPG projects.

(5) WORK ACCOMPLISHED SINCE LAST REPORT:  
Consultation on application of appropriate models for elevated finite line source models.

(6) WORK PLANNED FOR NEXT PERIOD:  
Additional consultation as required by requestor, priorities permitting.

(7) COMMENTS:  
None

(8) ESTIMATED COMPLETION DATE:  
Indefinite.

[REDACTED]

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